

CLAIMS:

1. A method of producing an interpenetrating polymer network comprising the steps of:

dissolving a biocompatible, hydrophilic first component selected from the group consisting of a biopolymer, a synthetic polymer and monomers and prepolymers of said biopolymer and synthetic polymer, and a second component selected from the group consisting of a biocompatible elastomer and monomers and prepolymers thereof in a common solvent to form a solution;

initiating cross-linking of at least one of the components; and forming a film, fiber, bead or mesh from the solution.

2. The method of claim 1, wherein a hydrophilic polymer and a an elastomer selected from the group consisting of silicone, polyurethane and a modified polyurethane are dissolved in a common solvent to form a solution; cross-linking of at least one of the components is initiated, the resulting resin solution is shaped to form a film or fiber.

3. The method of claim 2, wherein the resin solution is shaped to form a three-dimensional open mesh.

4. The method of claim 2, wherein the first component is selected from the group consisting of a polyvinyl alcohol, polyhydroxymethacrylate, polyethylene oxides, acrylamides, hydrophobically modified hydrogels, collagen, gelatin, fibronectin, cellulose, hydroxypropyl cellulose, hydroxypropylmethyl cellulose, methyl cellulose, ethyl cellulose, carboxymethyl cellulose, carboxyethyl cellulose, modified gelatin, alginate and oxidized cellulose, and the second component is selected from the group consisting of polyurethane-polydimethylsiloxane copolymers, vinyl

containing siloxanes, polymethylhydrosiloxanes, polyethylene-polyvinylacetate, polypropylene oxide, polytetramethylene oxide, polytetrafluoroethylene, polystyrene and HydroThane.

5. The method of claim 1, wherein the first component is gelatin and the second component is HydroThane.

6. The method of claim 1, wherein gelatin is subjected to methacrylation to produce methacrylated gelatin; the methacrylated gelatin and HydroThane are dissolved in a common solvent to form a solution; and the solution is UV-irradiated to effect cross-linking.

7. The method of claim 6, wherein the common solvent is dimethyl sulfoxide.

8. The method of claim 7, wherein methacrylation is effected with methacrylic anhydride.

9. The method of claim 1, wherein the first component is polyvinyl alcohol and the second component is HydroThane.

10. The method of claim 9, wherein the polyvinyl alcohol is subjected to methacrylation to produce methacrylated polyvinyl alcohol; the methacrylated polyvinyl alcohol and HydroThane are dissolved in a common solvent to form a solution; and the solution is UV-irradiated to effect cross-linking.

11. An interpenetrating polymer network comprising a biocompatible, hydrophilic first component selected from the group consisting of a biopolymer and a synthetic polymer; and a biocompatible elastomer as a second component, at least one of said first and second components being cross-linked.

12. The interpenetrating polymer network of claim 11 in the form of a three-dimensional, resilient, open mesh.

13. The interpenetrating polymer network of claim 11, wherein said first component is selected from the group consisting of polyvinyl alcohol, polyhydroxymethacrylate, polyethylene oxides, acrylamides, hydrophobically modified hydrogels, collagen, gelatin, fibronectin, cellulose, hydroxypropyl cellulose, hydroxypropylmethyl cellulose, methyl cellulose, ethyl cellulose, carboxymethyl cellulose, carboxyethyl cellulose, a modified gelatin, alginate and oxidized cellulose, and said second component is selected from the group consisting of vinyl containing siloxanes, polymethylhydrosiloxanes, polyethylene-polyvinylacetate, polytetramethylene oxide and HydroThane.

14. The interpenetrating polymer network of claim 13, wherein the first component is gelatin and the second component is HydroThane.

15. The interpenetrating polymer network of claim 13, wherein the first component is methacrylated gelatin and the second component is HydroThane.

16. The interpenetrating polymer network of claim 13, wherein the first component is polyvinyl alcohol and the second component is HydroThane.

17. The interpenetrating polymer network of claim 13, wherein the first component is methacrylated polyvinyl alcohol and the second component is HydroThane.